#10

INCOMPLETE

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First Name:	Jodi
Last Name:	Reed
Email:	jodi.reed@gcccd.edu
Custom Data:	Computer and Information Science and Computer Science
IP Address:	99.88.192.173

Page 1: I. Program Reflection and Description

Q1 Department(s) Reviewed:

Computer & Information Science

Q2 Lead Author and Collaborators:

Jodi Reed, Curtis Sharon, and Tim Phillips

Q3 Dean:

Larry McLemore

Q4 Provide a list of the recommendations from your last program review and explain how you have addressed them. Previous years' program reviews can be found here, on the IPRPC Intranet site.

Here are the recommendations from the 2011 program review for CIS:
• Complete SLO assessment of all department classes and programs;
• Restructure the industry certificate preparation course offerings;
• Develop and offer a new Network Security Certificate;

We are on track for SLO assessment and have provided an Assessment Plan to the SLO committee. We also assessed programs and will reassess according to the plan.

All of our certificate programs have been revised and are regularly reviewed and updated based on industry needs and input.

We now have a Network Security certificate program.

Q5 Provide a list of tenured/tenure track faculty and support staff in the program as of fall 2016.

• Jodi Reed – Web Development
• Tim Phillips – General Networking (Network+), Computer Repair (A+), and Cabling
• Curtis Sharon – Cisco Networking (CCNA and CCNP) and Databases

Q6 Provide your program's mission statement.

The Computer and Information Science department offers online and face-to-face courses that help students get jobs. We believe in hands-on learning in state-of-the-art computer labs with small class sizes so each student gets a computer and plenty of support. Our practical courses offer useful skills for the workplace.

Q7 Describe how your program supports the mission and goals of the College.

CIS is an instructional program that meets student needs for transfer (Computer Science) and career technical education. We strive to provide clear guided student pathways, available on our website. We also support student validation and engagement with student organizations and student-centered teaching methods with our classes.

Q8 Provide the description of your program as it appears in the current college catalog, available here.

Here are the descriptions for our degree programs.

NETWORKING, SECURITY AND SYSTEM ADMINISTRATION (Enterprise Networking emphasis and Enterprise System Administration Emphasis)
These degree programs prepare students for careers in computer networking or system administration and related fields. Upon completion, students may find entry level positions as computer support technicians, junior network administrators, junior system administrators, hardware technicians, data/voice/video cabling technicians, network project managers, designers/estimators or technical support personnel. The major prepares students to work as team members in an information technology group which designs, evaluates, tests, installs and maintains corporate networks. Preparation for the following industry certifications: A+, Network+, Security+, Linux+, Microsoft Certified Technician (MCT) in Windows and Windows Server (active directory, network infrastructure and applications infrastructure), Linux Profession Institute Certification Level 2, Certified Wireless Network Administrator (CWNA), Cisco Certified Network Associate (CCNA), Certified Ethical Hacking (CEH).

WEB DEVELOPMENT
This degree program equips students with the essential coding, programming, and design skills needed to build websites and applications for desktop and mobile platforms. Students gain practical experience using state of the art web development technology to prepare for entry-level positions as web developers. The curriculum is continually updated to respond to rapidly changing industry trends.

Page 2: II. Program Degrees and Certificates

Q9 Degree/Certificate #1

Industry certifications supported by CIS programs and courses include:
• Cisco Certified Network Associate (CCNA)
• Cisco Certified Network Professional (CCNP)
• CompTIA A+
• CompTIA Network+
• CompTIA Security+
• CompTIA Linux+
• Microsoft Certified Technician (MCT) in Windows and Windows Server (active directory, network infrastructure and applications infrastructure)
• Linux Profession Institute Certification Level 2
• Certified Wireless Network Administrator (CWNA)
• Cisco Certified Network Associate
• Certified Ethical Hacking (CEH)

NETWORKING, SECURITY AND SYSTEM ADMINISTRATION Degree and Certificate of Achievement (Enterprise Networking emphasis and Enterprise System Administration Emphasis)
A. How many awards were conferred

CIS Awards

2013-14 9
2014-15 8
2015-16 7
2016-17 9
2017-18 10

(Note that the data provided is for CIS as a whole, not specifically for this degree.)

B. When it was last reviewed and updated
This program is reviewed annually based on industry needs and input. The most recent significant change was to incorporate security courses into the program (Ethical Cybersecurity Hacking and Computer Forensics) in 2017.
C. How it is meeting the needs of students, industry/workforce (if CTE), and/or articulation with four year institutions (transfer and CTE)
State data shows that our graduates find well-paying jobs in their field and increase their income. Even student who only take a few classes show an increase in income (See Noncompletion Success in California).

D. Any changes that are planned if it is not meeting these needs
It is anticipated that CISCO will be moving toward cloud-based architecture and programmed networks. Curriculum will be updated as needed.
We would like to integrate Internet of Things into this degree program. To do this, we will need to develop a new Python programming course. Now that we have a new full-time Computer Science teacher, we are working on this and related curriculum.
We plan to revise the Microsoft curriculum to respond to changes in the Microsoft certifications. This is a challenge as we have not replaced Greg Differding, our Operating Systems specialist.

E. Whether students can complete the degree/certificate requirements within a two-year period (sequencing and scheduling of required courses are such that a student could complete them within a two year period or other appropriate timeline per requirement

Our programs are designed to be completed in 2 years by a full-time student. Rotations and recommended sequences (guided pathways) are shown on our website. The only challenge is that sometimes classes are cancelled due to class size.

Q10 Degree/Certificate #2

WEB DEVELOPMENT Degree and Certificate of Achievement
A. How many awards were conferred

2013-14 9
2014-15 8
2015-16 7
2016-17 9
2017-18 10

(Note that the data provided is for CIS as a whole, not specifically for this degree.)

B. When it was last reviewed and updated
This program is reviewed annually based on industry needs and input. The most recent significant change emphasizes coding and web programming in response to industry demand.
C. How it is meeting the needs of students, industry/workforce (if CTE), and/or articulation with four year institutions (transfer and CTE)
Strong workforce data shows that our graduates find well-paying jobs in their field and increase their income. Even student who only take a few classes show an increase in income (see Noncompletion Success in California). A recent Occupational Report (2018) shows that regional web development job opportunities will increase by 6.5% in the next 10 years. Industry uses content management systems, and while this is included in current curriculum, it could be emphasized more. Other changes in web development technology (flex & grid layout, git version control, etc.) have been introduced into existing courses, but course outlines need updating.

D. Any changes that are planned if it is not meeting these needs
We would like to develop a content management course. We think this would be useful to any student, including non-majors, who wish to create a website without coding. It would also be useful to majors who frequently work with CMS's in industry. We would also like to offer Python as an option for the required introduction to programming. Now that we have a new full-time Computer Science teacher, we are working on this and related curriculum.

Q11 Degree/Certificate #3

CISCO CERTIFIED NETWORK ASSOCIATE, CISCO NETWORK PROFESSIONAL Certificates of Proficiency

A. How many awards were conferred

2013-14 2
2014-15 3
2015-16 0
2016-17 4
2017-18 3
(Note that the data provided is for CIS as a whole, not specifically for this certificate.)

B. When it was last reviewed and updated
This program is reviewed annually based on industry needs and input.

C. How it is meeting the needs of students, industry/workforce (if CTE), and/or articulation with four year institutions (transfer and CTE)

CISCO CCNA industry certification is highly regarded by industry. Our advisory committees claim that it is a valuable certification.

D. Any changes that are planned if it is not meeting these needs
It is anticipated that CISCO will be moving toward cloud-based architecture and programmed networks. Curriculum will be updated as needed.
We are currently struggling with enrollment. We have developed a regional Netlab+ installation that supports online learning for some Cisco classes and are experimenting with online offerings to increase enrollment.

E. Whether students can complete the degree/certificate requirements within a two-year period (sequencing and scheduling of required courses are such that a student could complete them within a two year period or other appropriate timeline per requirement

Our programs are designed to be completed in 2 years by a full-time student. Rotations and recommended sequences (guided pathways) are shown on our website. The only challenge is that sometimes classes are cancelled due to class size.

Q12 Degree/Certificate #4

COMPUTER PROGRAMMING Certificate of Proficiency
A. How many awards were conferred
2013-14 2
2014-15 3
2015-16 0
2016-17 4
2017-18 3
(Note that the data provided is for CIS as a whole, not specifically for this certificate.)

B. When it was last reviewed and updated
This program is reviewed annually based on industry needs and input. We revised student learning outcomes in 2017 and are currently working on integrating Python and developing a transfer degree that will require us to add 2 new courses.

C. How it is meeting the needs of students, industry/workforce (if CTE), and/or articulation with four year institutions (transfer and CTE)

A transfer degree would make this program more useful for students.

D. Any changes that are planned if it is not meeting these needs
We are currently working on developing a computer science transfer degree program. This was not possible until recently, when the model curriculum was revised, allowing us to fit our courses into the 60 unit maximum. Prior to that, we were unable to convince math and science to reduce the units for classes required in the model curriculum. Math also declined to alter their discrete math course to fit the state's model curriculum. We also now have a full-time computer science teacher to help write the curriculum.
We would also like to incorporate Python programming language into the curriculum and are currently grappling with how we will do that.

E. Whether students can complete the degree/certificate requirements within a two-year period (sequencing and scheduling of required courses are such that a student could complete them within a two-year period or other appropriate timeline per requirement

Our programs are designed to be completed in 2 years by a full-time student. Rotations are shown on our website, and computer science classes tend to fill. Most courses are offered every semester, with some alternating between hybrid and online modalities.

COMPUTER SUPPORT TECHNICIAN Certificate of Proficiency
A. How many awards were conferred
2013-14 2
2014-15 3
2015-16 0
2016-17 4
2017-18 3
(Note that the data provided is for CIS as a whole, not specifically for this certificate.)

B. When it was last reviewed and updated
This program is reviewed annually based on industry needs and input. We recently updated course outlines for several courses in the program.

C. How it is meeting the needs of students, industry/workforce (if CTE), and/or articulation with four year institutions (transfer and CTE)

This program prepares students for entry level support jobs.

D. Any changes that are planned if it is not meeting these needs
We are currently working on updating our Window operating systems course outlines in response to certification changes by Microsoft.

E. Whether students can complete the degree/certificate requirements within a two-year period (sequencing and scheduling of required courses are such that a student could complete them within a two year period or other appropriate timeline per requirement

Our programs are designed to be completed in 2 years by a full-time student. Rotations and are shown on our website. The only challenge is that sometimes classes are cancelled due to class size.

CYBER SECURITY SPECIALIST Certificate of Proficiency
A. How many awards were conferred
2013-14 2
2014-15 3
2015-16 0
2016-17 4

2017-18 3
(Note that the data provided is for CIS as a whole, not specifically for this certificate.)

B. When it was last reviewed and updated
This is a new program created in 2017 that is reviewed annually based on industry needs and input. We added courses in Ethical Cybersecurity Hacking and Computer Forensics as part of this new certificate. These courses are also part of our degree programs.

C. How it is meeting the needs of students, industry/workforce (if CTE), and/or articulation with four year institutions (transfer and CTE)

Security is in demand according to job outlooks and our advisory committee partners. This program helps prepare students for industry certifications in CompTIA Security+, CompTIA Network+, and Certified Ethical Hacking (CEH).

D. Any changes that are planned if it is not meeting these needs
No changes are planned at this time.

E. Whether students can complete the degree/certificate requirements within a two-year period (sequencing and scheduling of required courses are such that a student could complete them within a two year period or other appropriate timeline per requirement

Our programs are designed to be completed in 2 years by a full-time student. Rotations are shown on our website. The only challenge is that classes are sometimes cancelled due to class size.

WEB DESIGN Certificate of Proficiency
A. How many awards were conferred
2013-14 2
2014-15 3
2015-16 0
2016-17 4
2017-18 3
(Note that the data provided is for CIS as a whole, not specifically for this certificate.)

B. When it was last reviewed and updated
This program is reviewed annually based on industry needs and input.

C. How it is meeting the needs of students, industry/workforce (if CTE), and/or articulation with four year institutions (transfer and CTE)

Web design prepares students for an entry level job assisting with Web graphics and web production. Based on advisory input, we think this program could use more emphasis on content management systems.

D. Any changes that are planned if it is not meeting these needs
We plan to add a content management course within the next year. This will be part of this program.

E. Whether students can complete the degree/certificate requirements within a two-year period (sequencing and scheduling of required courses are such that a student could complete them within a two year period or other appropriate timeline per requirement

Our programs are designed to be completed in 2 years by a full-time student. Rotations and recommended sequences (guided pathways) are shown on our website. The only challenge is that sometimes classes are cancelled due to class size.

WEB PROGRAMMING Certificate of Proficiency

A. How many awards were conferred
2013-14 2
2014-15 3
2015-16 0
2016-17 4
2017-18 3
(Note that the data provided is for CIS as a whole, not specifically for this certificate.)

B. When it was last reviewed and updated
This program is reviewed annually based on industry needs and input. We revised this program in 2018 to reduce the number of credits.

C. How it is meeting the needs of students, industry/workforce (if CTE), and/or articulation with four year institutions (transfer and CTE)

Web programming prepares students for an entry level job assisting with web production.

D. Any changes that are planned if it is not meeting these needs
Based on advisory committee input and research, we think that Python programming language would be a better introductory programming language for web programmers. We are currently working out how to fit Python into our existing computer science program.

E. Whether students can complete the degree/certificate requirements within a two-year period (sequencing and scheduling of required courses are such that a student could complete them within a two year period or other appropriate timeline per requirement

Our programs are designed to be completed in 2 years by a full-time student. Rotations and recommended sequences (guided pathways) are shown on our website. Our Web programming courses are only offered once a year, so we work with Grossmont to alternate semesters for JavaScript and Web Development II.

Q13 Please upload the awards data tables for your program. You can print that worksheet from the program review data report to PDF or copy and paste into a Word document the awards data table rows for your program from the college-wide program review data report, accessible here.

ADD CIS Awards.docx (12.4KB)

Page 3: III. Curriculum Review, Development and Assessment

Q14 Access the Five Year Curriculum Review Cycle. Have all of your active course outlines been reviewed within the last five years? **Yes**

Q15 Write a paragraph about any changes planned for the curriculum, both areas of revision and areas of development and growth.

We are currently working on developing a computer science transfer degree and incorporating Python programming language into the computer science curriculum. We would also like to incorporate “Internet of Things,” so we are working to clarify how that might be best integrated within our existing curriculum. Our Windows operating system courses need to be reviewed to reflect changes from Microsoft. We plan to add a content management system course to the Web Development programs. We are considering adding a Palo Alto course to our Networking program. Longer term considerations include cloud-based storage and architecture, programmed networks, mechatronics, data analytics, and more. These changes are based on industry input from our advisory committee partners as well as our ongoing research.

Q16 Do you have an assessment plan on file with SLOAC? If you have not already done so, you can submit your program's assessment plan to SLO Coordinator, Tania Jabour, at tania.jabour@gcccd.edu.	**Yes**
Q17 Following that assessment plan, is your program’s data up-to-date and complete in Nuventive/TracDat (including methods of assessment, results, dialogue/actions and follow-up)? If you are not sure, please contact Institutional Effectiveness Specialist, Erich Kevari, at erich.kevari@gcccd.edu to submit your assessment data.	**Yes**

Q18 What student learning-related successes and challenges have SLO results revealed for your department?Note: If SLO data are not offering useful feedback regarding student learning, and are not currently informing program improvements, please instead discuss the specific steps you plan to take to make learning outcomes and assessments more meaningful.

Our SLO outcomes assessments consistently show that students who complete our courses master the outcomes.

Most of our courses are offered as single sections in rotations so they are offered once a year or once every 3 semesters and most show success for SLO assessment. Though we do discuss SLO's in discipline meetings each semester (General Networking, Cisco, System Administration, Web Development, Programming and Business Computing), most of the challenges are course specific. For example, web development final project results show that students aren't validating their code. While we could list all of these of observations here, they are already documented in TracDat.

We also look at course success rates and consider strategies to improve student success. Some of our introductory courses have low success rates.

For specific classes, teachers have identified topics that need improvement and have accordingly made interventions. These are documented in TracDat.

We have also attempted to address low success rates in a few courses by experimenting with orientations, course length (8 week vs. 12 week vs. 16 week), tutoring, mentoring, and other interventions. One faculty member was able to greatly improve success in an online class by weekly monitoring and supportive communication with students as soon as they show signs of falling behind. We continue to work on improving student success rates. We find this experimentation valuable.
We recently revised all of the computer science SLO's in order to simplify them and articulate more closely with Grossmont. As we review course outlines, we review the SLO's and update them to reflect the latest trends and suggestions from shared governance committees that guide SLO's. Our SLO assessment plan schedules discussion of PLO's in 2021. SLO/PLO discussion among disciplines has not revealed any overall trends that need to be addressed discipline-wide, so we have not made major discipline-wide changes in curriculum or teaching methodology based on our SLO/PLO discussions or analysis.
CIS/CS programs are also guided by industry advisory meetings, regional discussions and meetings, state-wide discussions and meetings (held electronically and in person), conferences, training, industry research, and other discussions between faculty and industry members. Regional Information Technology (ICT) and Digital Media (DM) advisory meetings are well attended by other community colleges and industry leaders. Under the ICT/DM Sector Navigator's guidance, the department has participated in several meetings with state-wide industry members, discussed emerging trends in the industry, explored new teaching methodologies, and discussed student success initiatives with faculty from other community colleges.
CIS 110 offers multiple sections, many online with 50+ students. This course could benefit from a more structured approach to SLO assessment, so we will address this when we assess the course in Fall 2020. Ideally, for example, all instructors could use the same assessment tool.

Q19 Do you have a PLO assessment plan on file with SLOAC? If you have not already done so, you can submit your program's assessment plan to SLO Coordinator, Tania Jabour, at tania.jabour@gcccd.edu.

Yes

Q20 Please provide an analysis of your program learning outcomes (PLO) findings and what changes, if any were made as a result.

Our PLO outcomes assessments consistently show that students who complete our courses master the outcomes. We will reassess PLO's in 2021 according to our SLO Assessment Plan . We have made many curriculum and instructional changes since our last program review due to changes in technology, industry need, student demand, and success rates. These improvements include reorganization of every degree program and most certificate programs along with many significant course modifications and 13 course additions. We have increased the number of online courses and pioneered use of innovative instructional technologies such as Canvas, video, Zoom online conferencing, Netlabs, and CodePen.

Q21 Is this a CTE Program? **Yes**

Page 4: CTE Programs Only

Q22 If a CTE program, provide a list of the committee members of your Advisory Committee, the chair's name, and the meeting schedule (e.g., twice yearly)

The regional advisory committee meets twice a year under deputy sector navigator Leroy Brady. Here are the attendees from the most recent meeting:
Evan Donaldson (TALENIX)
Tony Amat (NELSON PHOTO)
Rick Belliotti (SDCRAA)
Jamal Rogers
Stephanie Johnston Austin, SDCOE
Michelle Gray (CONTINUING ED)
Javier Ayala (GROSSMONT COLLEGE)
Jeanie Tyler (CITY COLLEGE)
Gregg Baker (PALOMAR COLLEGE)
W. Duane Wesley (MESA COLLEGE)
Pippa Pierce (PALOMAR COLLEGE)
Clifton Quinn (GROSSMONT COLLEGE)
Rand Green (PALOMAR COLLEGE)
Justin Bigley, (CITY COLLEGE)
Robert Healey (CITY COLLEGE)
Duane Wesley (MESA COLLEGE)
Theresa Savarese (CITY COLLEGE)
Tom Luibel (SOUTHWESTERN COLLEGE)
Rick Cassoni (MIRACOSTA COLLEGE)
George S. Jaseianakis (MESA COLLEGE)
Curtis Sharon (CUYAMACA COLLEGE)
David Kennemer (CITY COLLEGE)
Leroy Brady (DSN, San Diego/Imperial County Region)

We also participate in the quarterly San Diego Community College Computing Consortium (SD4C), comprised of business and computer instructors from all San Diego/Imperial County community colleges and San Diego State University. This committee shares information gathered from a variety of sources including their own advisory groups.

In addition, we also consult with the following local advisors (advisor list updated online), usually in discipline specific meetings or via electronic communication (surveys, email, LinkIn, etc.) as needed when we are working on curriculum changes.

Name Company Area
Diana Lewis Business Solutions and Technologies Business
Joanee' Johnson Northrup Grumman Business
Kevin Ware World Bridge Technologies Business
Mike Stockman Business Solutions and Technologies Business, CS
Azhar Antwan Union Bank CS
Dennis Thompson Informatica CS
Garrison Price SPAWAR CS
John Gerstenberg City of Chula Vista CS
Paul Dorin SYS Technologies CS
Sally Norvell SYS Technologies CS
Tom Volkman NISC CS
Tracy Henchbarger SYS Technologies CS
Jaime Sanchez ComplianceMetrix CS
George Dowden Image and Ink GD
Jeff Monday Apple, Inc. GD
Tim Reeves Partner Press GD
Chris Jones Cox Communications Network
Richard Glauser Network
James Finch CenterBeam Network, OS
Matt Stoyka CenterBeam Network, OS
Bob Akers GCCCD Network, Security
Cassandra Kelly Taranet Network, Security
Todd Stallard Microsoft OS
Ed Sands General Atomics OS, CS
Julio Garibay NGA Key Solutions OS, CS
Steve Price CISSP Security, CS
Angela Murrell The Atlas for Cities, Vertico Labs Web
Ann Tarvin Tarvin Commercial Art Web
Bradley Shammam Shamman Consulting Services Web
Dale Olguin Café Web Design Web
Dustin Keimig Latest Rage Web
Faten Taha Eton Bioscience, Inc Web
Glen Draeger Sweet Thursday Web Development Web
Greg Corwin Image Genisis Web
Grey Vugrin Classy.org, Vertico Labs Web
Marguerite English Descanso Web Design Web
Sandra Smith Smith Web Design Web
Summer Piper Independent Software Developer Web
Tera Bates InterKnowlogy Web
Teresa Pelkie Web
Jeff Sale San Diego Supercomputer Center Web
Sergey Martinovich Red Trolley Studio Web, GD

Q23 Summarize the recommendations from the Committee.

Advisory committee recommendations have included: (1) focus curriculum on industry IT skills certifications, but emphasize communication and problem solving rather than teaching to the test (2) maintain hands-on, practical focus of the department's labs and curriculum, (3) consider curriculum in robotics, data analytics, cloud architecture, Python, and Internet of Things (4) develop and implement more computer security classes, (5) emphasize coding, web programming, and content management systems (CMS) in the web development curriculum.

Q24 Describe changes that have been made to the program as a result of the committee's recommendations

These recommendations have led to the department (1) basing more classes on the industry certification standards' stated learning objectives but maintaining a broad interpretation of the learning objective, (2) keeping the lab components of all labs which emphasize scenario-based labs where the students are forced to analyze a problem, develop a course of action, implement their plan and evaluate the plan's effectiveness, (3) adopting mechatronics courses into CS (cross listed with Engineering) and exploring further development of mechatronics, Python, and Internet of Things curriculum (in progress), (4) developing 2 new Cybersecurity courses and a certificate program, and (5) integrating CMS into the Web Development II course and exploring development of a CMS course.

Q25 If a CTE program, please discuss your labor market information. You can access labor market information on the CTE Launchboard, CTE Program Reports that have been prepared for the Governing Board, or by contacting the IESE Office at brianna.hays@gcccd.edu.

All our current programs project growth over the next 10 years. Here is a summary of Occupation Overviews provided by the college (based on 2018 California Labor Market Information Department data).

Job	2018 Regional Jobs	Projected Change 2018-2028	Median Regional Hourly Earnings
Web Developer	2379	6.50%	$20.88
Info Security Analyst	852	22.29%	$46.61
Network Support Spec	1750	8.60%	$33.37
Network Architects	1532	6%	$56.74

Page 5: IV. Program Data Analysis

Q26 How has the program's student population changed over the past 5 years (e.g., student demographics, enrollment, etc.)? Note that you can access your program's data report and the college-wide data report here.

CIS (Fall data)
CIS enrollment is down by 22% and most CIS demographics haven't shifted significantly in the past 5 years. There was a slight increase in the percentage of females (from 33% to 36%).

We also saw a slight change in the percentage of 20-24 year old students (from 34% to 38%) and a 4% decrease in the number of 40+ students (18% to 14%).

COMPUTER SCIENCE (Fall data)
CS enrollment increased by 246% in the past 5 years. Here are a few significant changes in the percentages:
Females +5%
Hispanic +9%
White -9%
<20 years -5%
20-24 years +13%
40+ years -9%

Q27 How does the program's student population differ from the College's overall student population, if at all? Note that you can access your program's data report and the college-wide data report here.

CIS
The percentage of females (32%) is significantly lower than the college average percentage of 54%.

The ages of students in CIS are quite different from those for the college. CIS students tend to be older.

COMPUTER SCIENCE
CS has a low percentage of females, averaging 14% compared to the college average percentage of 54%. CS students also tend to be older than the average college student.

Q28 What are the implications for ensuring the program is addressing the needs of its student population?

We would like to have a higher percentage of females in our classes. While we have tried to appeal to female students (and even made that a focal point of an NSF grant before our last program review), our enrollment mirrors industry trends. Increasing the number of women in technology is a complex problem and the topic of much research.

Our students tend to be older than the average college student. Many of our classes are offered in the evening so that students who work during the day can take classes. We also offer online sections. We had an innovative and energetic Cisco program based on open-entry open-exit (OEOE) that was decimated when administration chose to eliminate OEOE. Cisco enrollment dropped by 28% and hasn't recovered since then. Without this kind of scheduling, it has been impossible to offer the advanced courses required for the Cisco professional certification

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Q29 If you would like to attach any charts or additional documentation (aside from the program review report prepared by the IESE Office), please upload it using the button below.

ADD CIS & CS demographics.docx (12.8KB)

Q30 How has the program's success rate across all courses changed over the past 5 years?

The CIS success rate has improved by 4% and the CS success rate has decreased.

Q31 The College has set a 2024 goal of reaching a 77% course success rate (students passing with a grade of A, B, C, or P out of those enrolled at census) for the College as a whole. Consider how your will program help the College reach its long-term goal of increasing the course success rate to 77%. Your program may have a program-specific goal for program-wide success rate that differs from the college goal, based on historical or contextual data/information. This is intended to provide a goal for improvement only; programs will not be penalized for not meeting the goal. What is your program's one-year (2019/20) goal for success rate across all courses in the program?

Our 1-year overall success rate goal is 70%.
Here are some specific actions to improve success.
• Share success data and goals with faculty.
• Share professional development opportunities with faculty.
• Discuss strategies to improve success at department meetings and via email.
• Continue to offer tutoring, embedding when possible.
• Last year we participated in an experimental program with a student advocate in the Cisco 1 course, which has a traditionally high attrition rate. We did see higher success rates as a result. Unfortunately, this has not been offered to us this year, but we hope to carry on some of the lessons learned with faculty and tutors.

Q32 Which specific groups (by gender and ethnicity) have success rates lower than that of the program overall?

CIS(fall data):
• African American (17% lower average %)
• Hispanic (7% lower average %)
• Multiple Races/Ethnicities (2% lower average %)
• Female (1% lower average %)

CS (fall data):
• African American (39% lower average %)
• Hispanic (10% lower average %)
• Multiple Races/Ethnicities (2% lower average %)
• Female (2% lower average %)

Q33 What program (or institutional) factors may be contributing to these lower rates of success for these groups of students?

• Lack of faculty awareness of specific teaching techniques to improve equity.
• Unconscious bias.
• Racism that is prevalent in east county.

Q34 What specific steps will the program take to address these equity gaps in the 2019/20 academic year?

• Share data with faculty.
• Encourage faculty to participate in equity training.
• Focus on success in department meetings.
• Continue to offer tutoring, embedding when appropriate.

Q35 How do these activities inform the long-term program goals that you are setting in this comprehensive program review?

Our goals will address success and equity.

Q36 If you would like to attach any charts or additional documentation (aside from the program review report prepared by the IESE Office), please upload it using the button below.

ADD Success Rate.docx (30.6KB)

Q37 Does your program offer any courses via distance education (online)? **Yes**

Page 6: Distance Education Course Success

Q38 Are there differences in success rates for distance education (online) versus in-person sections? **Yes**

Q39 If there are differences in success rates for distance education (online) versus in-person classes, what will the program do to address these disparities?

Most of our courses are taught online. Those that are not fully online are partly online (hybrid).

In CIS, online classes average success rates are 61%, which is 7% lower than hybrid success rates and 4% lower than the college-wide online success rate (65%). Over the past 5 years, 62% of CS students enrolled in online classes.

In CS, online classes average success rates are 69%, which is 3% HIGHER than hybrid success rates and 4% HIGHER than the college-wide 5-year average online success rate (65%). Over the past 5 years, 38% of CS students enrolled in online classes.

We will continue to address online course quality and regular & effective contact in department meetings and while evaluating online courses. We will share student success data with faculty. We will continue to encourage faculty to participate in professional development related to student success and equity. We also expect that reducing the online class size from 50 to 32 as specified in the new union contract will improve student success. Teaching 50 students in an online class with complex grading is not sustainable. It can take up to 15 minutes to help debug a complex coding or programming assignment.

Page 7: Strengths, Challenges & External Influences

Q40 Please describe your program's strengths.

FACULTY. Our innovative, motivated, and dedicated faculty are committed to working with new technology to deliver quality instruction applicable to today's work environment. Faculty incorporate hands-on, practical application projects in most classes as the method of evaluating skill (and SLO) attainment. Students, faculty, and industry representatives consistently agree that this continues to be what they consider best about community college courses. Our faculty participate regularly in professional development to improve teaching skills and maintain currency in their fields and industry certifications.

CURRICULUM. We strive to keep our curriculum current. For example, we recently added cybersecurity courses and a certificate to our program. We're currently working on updates in Computer Science, Web Development, Networking, and Operating Systems.

TEACHING AND TECHNOLOGY INNOVATION. Our teachers continue to explore new technologies (Canvas, Zoom, Camtasia, Google Apps, CodePen, Netlabs+, etc.). We share best practices and effective technologies in committees, meetings, and professional development workshops.
CIS and CS offer many online courses and are focused on continuous improvement for those courses.
Curtis Sharon coordinates a regional NetLabs installation, now used by Cuyamaca along with several colleges and high schools in the area. This virtualization solution allows students to log in to a realistic virtual environment, allowing access to applications and allowing secure instructional lab assignments that deal with hacking, operating systems, etc. In a virtualized environment, every student is an active learner. Every student gets to complete every lab step. This also allows students to complete lab activities from home.

RELATIONSHIPS AND STUDENT ENGAGEMENT. We have good relationships with local high schools, SDSU and UCSD, and other colleges in the region. We participate regularly in regional advisory committees and San Diego County Community College Consortium (SD4C), a regional group that meets regularly to discuss curriculum, teaching methods and materials, articulation, and more.
Curtis Sharon continues to lead local middle and high schools to regionals in the Cyber League and Cyber Patriot competitions, training our next generation (and potential students) in cyber-security and building relationships with local teachers along the way. Curtis also advises a security club.

CONTRIBUTING TO THE COLLEGE COMMUNITY. Our department has a long history of supporting the campus and district, especially in technology-related committees. Jodi Reed currently serves as Distance Education Coordinator and served as Acting Dean of Learning and Technology Resources for 6 months while Kerry Kilber-Rebman was on leave. Curtis Sharon serves on the district IT Security Workgroup and College Technology Committee, recently presenting to multiple groups about security and new Windows 10 policies. Our faculty also regularly present professional development workshops.

EQUIPMENT. Strong Workforce has allowed us to keep much of our equipment up to date for our technical courses (Networking, A+, and Cabling).

Q41 Please describe your program's challenges.

CHANGING TECHNOLOGY. Technology continues to grow more complex. It's challenging to incorporate changes into curriculum without overloading course content or requiring too many courses. We struggle to maintain rigor while also improving success rates. We have also been asked to create innovative new curriculum in Mechatronics and Internet of Things, but none of our faculty have expertise in these areas. Asking current teachers to do this would be like asking a French teacher to learn Russian.

RETIREMENTS. Keeping our curriculum up to date is difficult, especially with the many retirements we have had in our full-time faculty, including recent retirements of Ted Chandler, Greg Differding, and David Raney. We only recently replaced Connie Elder, our only Computer Science specialist (who left over 10 years ago). Currently we have no full-time faculty member to track changes in operating systems and cloud architecture, so we are not as current as we would like to be with our curriculum. Tim Phillips will likely retire soon, which will leave a gap in CompTIA certification and cabling courses.

ENROLLMENT. While our computer science enrollment has more than doubled, our CIS enrollment has declined (despite strong labor market data that shows growth in IT). This is true for similar departments in the region. We don't know how to address this. Our most energetic attempt was to offer Cisco classes as open-entry open-exit (OEOE), where we allowed students to take any of the many Cisco courses in a lab with 1 teacher. Though this was wildly successful, an administrative decision eliminated OEOE, causing an immediate 28% drop in Cisco enrollment.
Low enrollments make it difficult to introduce new courses and programs. The higher-end training needed by industry is challenging for our entry level students, especially when they (and the prerequisite courses) are offered in rotation. We are told to innovate, but we struggle just to keep up with changes in our own fields. It's unrealistic to expect a specialist to create a new program outside of their field.

Q42 Please describe external influences that affect your program (both positively and negatively).

• Changes in technology and industry are constant, and the pace of change is increasing.
• Competing private colleges have very good advertising.
• Our students tend to be older, working adults who take classes to improve their job prospects. Their interest in education fluctuates depending on the economy, industry certification demand/requirements, and personal issues.
• Subject areas go in and out of fashion. Lately there's been a lot of media about coding and computer science, which has helped to raise our enrollments in computer science.
• The lack of fully online GE prevents us from offering a full degree program online.
• We've experienced lack of support for replacing our computer labs. While we used to replace one lab per year, it's been 4 years since we replaced a lab.
• Industry wants to hire those with experience, but seems reluctant to offer internship opportunities.

Page 8: V. Previous Goals: Update (If Applicable)

Q43 Would you like to provide an update for your previous Goal(s)? **No**

Page 9: Previous Goal 1

Q44 Previous Goal 1: **Respondent skipped this question**

Q45 Link to College Strategic Goal(s): **Respondent skipped this question**

Q46 Goal Status	**Respondent skipped this question**
Q47 How was the goal evaluated? If the goal is "in progress," how will it be evaluated?	**Respondent skipped this question**
Q48 Please provide the rationale for this goal:	**Respondent skipped this question**
Q49 Please provide the goal action steps for the year (previously "Activities"):	**Respondent skipped this question**
Q50 Do you have another goal to update?	**Respondent skipped this question**

Page 10: Previous Goal 2

Q51 Previous Goal 2:	**Respondent skipped this question**
Q52 Link to College Strategic Goal(s):	**Respondent skipped this question**
Q53 Goal Status	**Respondent skipped this question**
Q54 How was the goal evaluated? If the goal is "in progress," how will it be evaluated?	**Respondent skipped this question**
Q55 Please provide the rationale for this goal:	**Respondent skipped this question**
Q56 Please provide the goal action steps for the year (previously "Activities"):	**Respondent skipped this question**
Q57 Do you have another goal to update?	**Respondent skipped this question**

Page 11: Previous Goal 3

Q58 Previous Goal 3:	**Respondent skipped this question**
Q59 Link to College Strategic Goal(s)	**Respondent skipped this question**
Q60 Goal Status	**Respondent skipped this question**

Q61 How was the goal evaluated? If the goal is "in progress," how will it be evaluated?	**Respondent skipped this question**
Q62 Please provide the rationale for this goal:	**Respondent skipped this question**
Q63 Please provide the goal action steps for the year (previously "Activities"):	**Respondent skipped this question**
Q64 Do you have another goal to update?	**Respondent skipped this question**

Page 12: Previous Goal 4

Q65 Previous Goal 4:	**Respondent skipped this question**
Q66 Link to College Strategic Goal(s)	**Respondent skipped this question**
Q67 Goal Status	**Respondent skipped this question**
Q68 How was the goal evaluated? If the goal is "in progress," how will it be evaluated?	**Respondent skipped this question**
Q69 Please provide the rationale for this goal:	**Respondent skipped this question**
Q70 Please provide the goal action steps for the year (previously "Activities"):	**Respondent skipped this question**

Page 13: VI. New Goals

Q71 Would you like to submit any new goal(s)?	**Yes**

Page 14: New Goal 1

Q72 New Goal 1:

Improve overall student success rate by 1% each year and reduce equity gaps by 2% each year.

Q73 Link to College Strategic Goal

Guided Student Pathways ,

Student Validation and Engagement

Q74 Please provide the rationale for this goal:

This is at the heart of the college-wide effort to improve student success and equity.

Q75 Please provide the goal action steps for the year (previously "Activities"):

• Continue to offer tutoring, embedding when appropriate.
• Encourage and fund professional development that focuses on student success and equity, especially for online teaching and learning. This includes @ONE courses, Online Teaching Conference, and other local and online training.

Q76 How will the goal be evaluated?

Review and assess success data annually.

Q77 Do you have another new goal? **Yes**

Page 15: New Goal 2

Q78 New Goal 2:

Maintain currency in instruction and technology.

Q79 Link to College Strategic Goal

Guided Student Pathways ,

Student Validation and Engagement

Q80 Please provide the rationale for this goal:

Our instructors and technology must be up-to-date to continue to meet industry needs and support new software and curriculum. For some courses, instructors must maintain certifications to teach. Students need access to current software to be able to complete courses.

Q81 Please provide the goal action steps for the year (previously "Activities"):

• Hire a new full-time instructor who will focus on Operating systems and at least one other area (security, business computing, Internet of Things or CompTIA certification).
• Replace 4 computer labs with new computers.
• Replace take-apart computers needed for A+ certification.
• Purchase wireless routers and NICs needed for A+ certification.
• Update VoIP equipment for Cisco certification.
• Renew contract for Microsoft Imagine program, which provides free or low-cost software to students.
• Renew contracts for Cisco Academy, Netlabs+, and VMWare.
• Purchase webcams for computers in the Cisco classroom to allow for collaboration with remote students via Zoom.
• Fund professional development for instructors. This includes WASTC certification courses, CSSIA online certification courses, Cisco Live conference, and the ICT Digital Media Conference.

Q82 How will the goal be evaluated?

Review annually to ensure teachers are qualified to teach, technology is adequate to support the curriculum, and students have access to technology needed to complete courses.

Q83 Do you have another new goal? **Yes**

Page 16: New Goal 3

Q84 New Goal 3:

Maintain currency in curriculum.

Q85 Link to College Strategic Goal **Guided Student Pathways** , **Student Validation and Engagement**

Q86 Please provide the rationale for this goal:

In order for students to find employment, our curriculum needs to be up-to-date and responsive to industry needs.

Q87 Please provide the goal action steps for the year (previously "Activities"):

• Hire a new full-time instructor who will focus on Operating systems and at least one other area (security, business computing, Internet of Things or CompTIA certification).
• Develop Computer Science Transfer degree. This requires the addition of 2 new courses.
• Integrate Python programming language into the computer science curriculum, either as a stand-alone course or as the programming language for the introductory course (CS 119).
• Develop a new Web Development content management system course.
• Develop a new Networking Palo Alto course.
• Research changes in Microsoft certification programs and make recommendations for curriculum changes.
• Research Internet of Things and how to integrate this new area into our curriculum.

Q88 How will the goal be evaluated?

Curriculum will be assessed annually to ensure it is meeting student and industry needs.

Q89 Do you have another new goal?	**No**

Page 17: New Goal 4

Q90 New Goal 4:	**Respondent skipped this question**
Q91 Link to College Strategic Goal	**Respondent skipped this question**
Q92 Please provide the rationale for this goal:	**Respondent skipped this question**
Q93 Please provide the goal action steps for the year (previously "Activities"):	**Respondent skipped this question**
Q94 How will the goal be evaluated?	**Respondent skipped this question**
Q95 Do you have another new goal?	**No**

Page 18: Resources Needed to Fully Achieve Goal(s)

Q96 Is the program requesting resources this year to achieve this goal?	**Yes**

Page 19: VII. Faculty Resource Needs

Q97 Are you requesting one or more faculty positions to achieve this goal? **Yes**

Page 20: Faculty Position Request(s)

Q98 Please remember to complete the Faculty Position Request Form (accessible here, under Staffing Request Information) for this position that you are requesting and upload it using the button below.The Faculty Position Request Form (In Word) can be located here (under Staffing Request Information).Brief Description of the Position Requested:

FULL TIME TENURE TRACK CIS SYSTEM ADMIN TEACHER
The CIS department has many distinct areas of specialization, including networking, security, web development, business computing, computer science, and system administration. While some of these areas overlap, expertise is required in each area to track industry changes, shepherd programs, keep curriculum current, and teach courses. Current CIS Full-time faculty struggle to keep up in their own areas of specialization. We need a full-time teacher able to focus on Windows and Linux operating systems and at least one other area (cloud architecture & data storage, virtualization, business computing, Internet of Things, and CompTIA certification). Greg Differding's retirement left a gap in the area of operating systems and virtualization. David Raney's retirement left us without a full-time faculty member to lead our business computing program. Tim Phillips plans to retire soon, leaving a gap in CompTIA certification and cabling. We hope to develop new curriculum to integrate Internet of Things, but don't have anyone to do this. Students respond to teachers who have expertise, enthusiasm, and teaching skills. Students also need access to current curriculum to pass certification exams and get jobs.

Q99 Faculty Position Request 1 - Related Program Goal(s):

2. Maintain currency in curriculum. 3.Maintain currency in instruction and technology.

Q100 Faculty Position Request Upload 1: Please upload the completed faculty request form using the button below. You can access the Word version of the Faculty Position Request Form here (under Staffing Request Information).

FacultyPositionRequestForm-2018-19FINAL.docx (17.9KB)

Q101 Faculty Position Request 2 (if applicable): Please remember to complete the Faculty Position Request Form (accessible here, under Staffing Request Information) for this position that you are requesting and upload it using the button below.The Faculty Position Request Form (In Word) can be located here (under Staffing Request Information).Brief Description of Position Requested: **Respondent skipped this question**

Q102 Faculty Position Request 2 - Related Program Goal(s): **Respondent skipped this question**

Q103 Faculty Position Request Upload 2: Please upload the completed faculty request form button below. You can access the Word version of the Faculty Position Request Form here (under Staffing Request Information).	**Respondent skipped this question**

Page 21: VIII. Classified Staff Resource Needs

Q104 Are you requesting one or more classified positions to achieve this goal?	**No**

Page 22: Classified Staff Position Request(s)

Q105 Classified Staff Position Request 1: Please remember to complete the Classified Staff Position Request Form (accessible here, under Staffing Request Information) for this position you are requesting.Brief Description of Position Requested:	**Respondent skipped this question**
Q106 Classified Staff Position 1 Related Program Goal(s):	**Respondent skipped this question**
Q107 Classified Staff Position Request Upload 1: Please upload a completed Classified Position Request Form using the button below. You can access the Word version of the Classified Position Request Form here (under Staffing Request Information).	**Respondent skipped this question**
Q108 Classified Staff Position Request 2: Please remember to complete the Classified Staff Position Request Form (accessible here, under Staffing Request Information) for each position you are requesting.Brief Description of Position Requested:	**Respondent skipped this question**
Q109 Classified Staff Position 2 Related Program Goal(s):	**Respondent skipped this question**
Q110 Classified Staff Position Request Upload 2: Please upload a completed Classified Position Request Form using the button below. You can access the Word version of the Classified Position Request Form here (under Staffing Request Information).	**Respondent skipped this question**

Page 23: IX. Technology Resource Needs

Q111 Are you requesting technology resources to achieve this goal?	**Yes**

Page 24: Technology Request(s)

Q112 Technology Request 1: Please remember to complete a Technology Request Form for each request. You can access the online Technology Request Form here: Technology Request Form.

Description:	**Replace computers in E-206, E-210, E-211 (A+), and E-213 (cabling)**
One time or On-going	**One Time**
Amount Requested $	**192,174**
Related Program Review Goal:	**Goal 2: Maintain currency in instruction and technology.**

Q113 Technology Request 2: Please remember to complete a Technology Request Form for each request. You can access the online Technology Request Form here: Technology Request Form.

Description:	**Monitor Arms**
One time or On-going	**One Time**
Amount Requested $	**1871**
Related Program Review Goal:	**Goal 2: Maintain currency in instruction and technology.**

Page 25: X. Perkins and Strong Workforce Resource Needs

Q114 Are you requesting Perkins and/or Strong Workforce resources to achieve this goal?	**Yes**

Page 26: Perkins Request and Strong Workforce

Q115 Perkins Request and Strong Workforce 1: Please remember to complete the Perkins Request Form and submit it via the annual Perkins/Strong Workforce request process/cycle.

Description:	**Replace computers in E-206, E-210, E-211 (A+), and E-213 (cabling)**
Amount Requested $:	**192,174**
Related Program Review Goal(s):	**Goal 2: Maintain currency in instruction and technology.**

Q116 Perkins Request and Strong Workforce 2: Please remember to complete the Perkins Request Form and submit it via the annual Perkins/Strong Workforce request process/cycle.

Description:	**Technology contracts**
Amount Requested $	**4495**
Related Program Review Goal(s):	**Goal 2: Maintain currency in instruction and technology.**

Page 27: XI. Supplies/Equipment Resource Needs

Q117 Are you requesting supplies and/or equipment resources to achieve this goal?	**No**

Page 28: Supplies/Equipment Request(s)

Q118 Supplies/Equipment Request 1: In the boxes below please provide information on your request. Supplies/Equipment requests will be considered on a one-time funding basis.	**Respondent skipped this question**
Q119 Supplies/Equipment Documentation 1: Please upload any supplies/equipment quotes or additional documentation for this request.	**Respondent skipped this question**
Q120 Supplies/Equipment Request 2: In the boxes below please provide information on your request. Supplies/Equipment requests will be considered on a one-time funding basis.	**Respondent skipped this question**
Q121 Supplies/Equipment Documentation 2: Please upload any supplies/equipment quotes or additional documentation for this request.	**Respondent skipped this question**

Page 29: XII. Facilities Resource Needs

Q122 Are you requesting facilities resources to achieve this goal?	**No**

Page 30: Facilities Request

Q123 Facilities Request 1: Please provide the information below and remember to complete the online Facilities Request Form, accessible here: Facilities Request Form	**Respondent skipped this question**

Q124 Facilities Request 2: Please provide the information below and remember to complete the online Facilities Request Form, accessible here: Facilities Request Form	**Respondent skipped this question**

Page 31: XIII. Professional Development Resource Needs

Q125 Are you requesting professional development resources to achieve this goal?	**Yes**

Page 32: Professional Development Request

Q126 Professional Development Request 1: Please provide the information identified below and follow the process for requesting professional development funds, outlined here.

Description:	**"Professional Development. CIS instructors are required to maintain their professional certification, currency, and industry focus. Includes Cisco LIVE Conference $3500, 3 WASTC CISCO certification classes $8925, 5 CSIAA online training $495, 2 @ONE 12-week course in online standards and practices $660, 4 Online Teaching Conference $6400, Digital Media Educators conference $200**
Amount Requested $:	**20180**
Related Program Review Goal(s):	**2**

Q127 Professional Development Request 2: Please provide the information identified below and follow the process for requesting professional development funds, outlined here.	**Respondent skipped this question**

Page 33: XIV. Other Resource Needs

Q128 Are you requesting any other resources to achieve this goal?	**No**

Page 34: Other Resource Request

Q129 Other Resource Request 1: Other resource requests will be considered on a one-time funding basis. Please fill in the information below.	**Respondent skipped this question**

Q130 Other Resource Request 2: Other resource requests will be considered on a one-time funding basis. Please fill in the information below.

Respondent skipped this question

Page 35: Executive Summary

Q131 Executive Summary

CIS Program Summary

PROGRAM OVERVIEW AND DESCRIPTION. Currently, 4 full-time and 15 part-time instructors teach classroom/lab and online courses in Network Administration, Web Development, Security, and Computer Science. We offer 3 degrees and 7 Certificates Specialization with 44 courses. Our courses prepare students for IT industry certification in CompTIA (A+, Network+, Linux+, and Security+), Microsoft (MCT, Windows, and Windows Server), CISCO (CCNA & CCNP), Linux Professional Institute, Certified Wireless Network Administrator, and Certified Ethical Hacking. A hallmark of all programs and courses is the focus on practical skills and problem-solving through numerous and extensive “hands-on” learning activities.
In addition to teaching classes, the department coordinator and faculty focus their efforts on developing new curriculum based on the Industry Advisory Board recommendations and rapidly changing technology and industry conditions, actively marketing the CIS programs, reaching out to the community, and using innovative technology to support student learning.

STRENGTHS. Our strengths include our innovative and dedicated faculty, current curriculum, community relationships, ongoing contribution to the college and district, and state-of-the-art classrooms and labs.

CHALLENGES. Our main challenges include keeping up with accelerating technology changes and dealing with fluctuating enrollment. While our computer science enrollments have more than doubled, our CIS enrollments have declined (despite strong labor market data for IT). As well, all our programs have grown more complex, making them more challenging for students. We have struggled to keep up with specialty areas once covered by now retired faculty and have been asked to develop new programs.

EXTERNAL INFLUENCES. External influences include relentless and accelerating change, competition from private colleges that excel at advertising, students with increasing economic stresses, media attention to our subject areas, and increasingly complex skills expected for entry-level employment.

HOW ASSESSMENT RESULTS HAVE GUIDED YOUR PROGRAM. Courses and programs are regularly assessed according to our assessment plan. Our SLO and PLO outcomes assessments consistently show that most students who complete our courses master the outcomes. Faculty use assessment results to guide how they teach their courses. Their outcomes assessments and interventions are documented in TracDat. The department has also addressed low success rates in a few courses by experimenting with orientations, course length (8 week vs. 12 week vs. 16 week), tutoring, mentoring, and other interventions. We continue to work on improving student success rates and regularly share successful interventions at department meetings. Recently, all computer science SLO’s were revised.

We have made many curriculum and instructional changes since our last program review due to changes in technology, industry need, student demand, and success rates. These improvements include reorganization of every degree program and most certificate programs along with many significant course modifications and 13 course additions. We have increased the number of online courses and pioneered use of innovative instructional technologies such as Canvas, video, Zoom online conferencing, Netlabs, and CodePen.

Q132 Are you ready to submit your program review? If you click "No," you will be redirected to the start of the program review module.

No